

Fig. 1

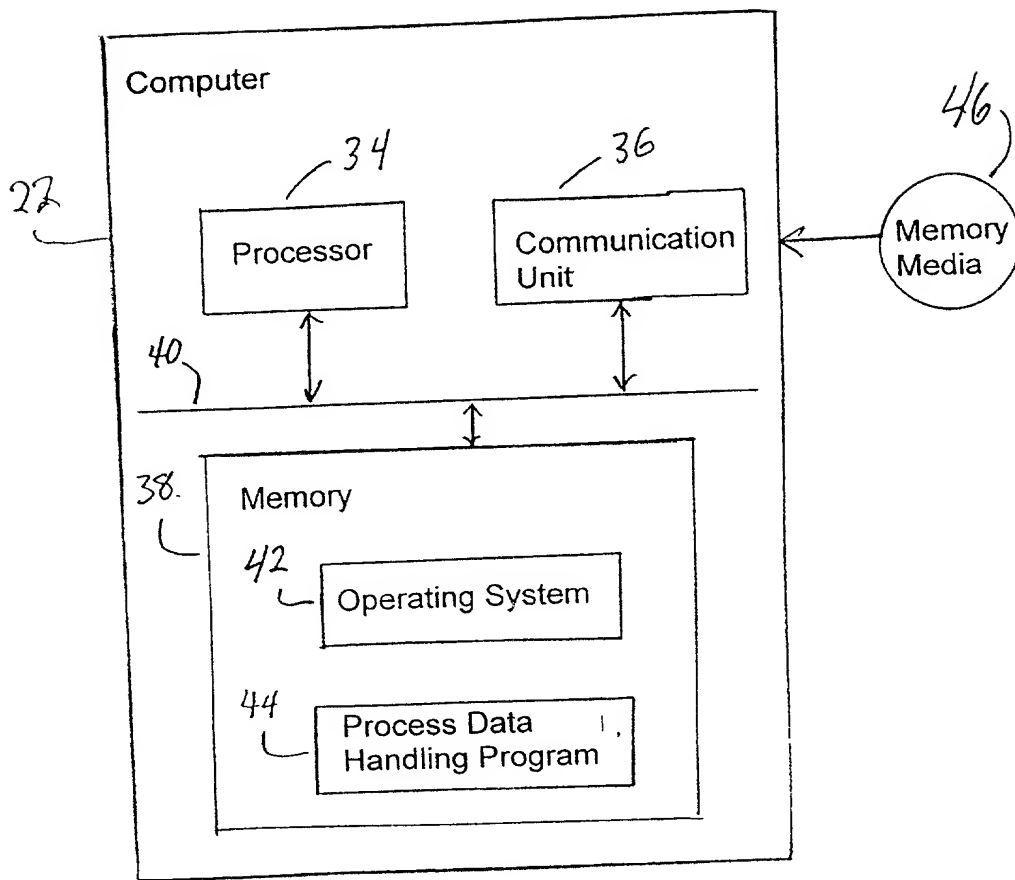


Fig. 2

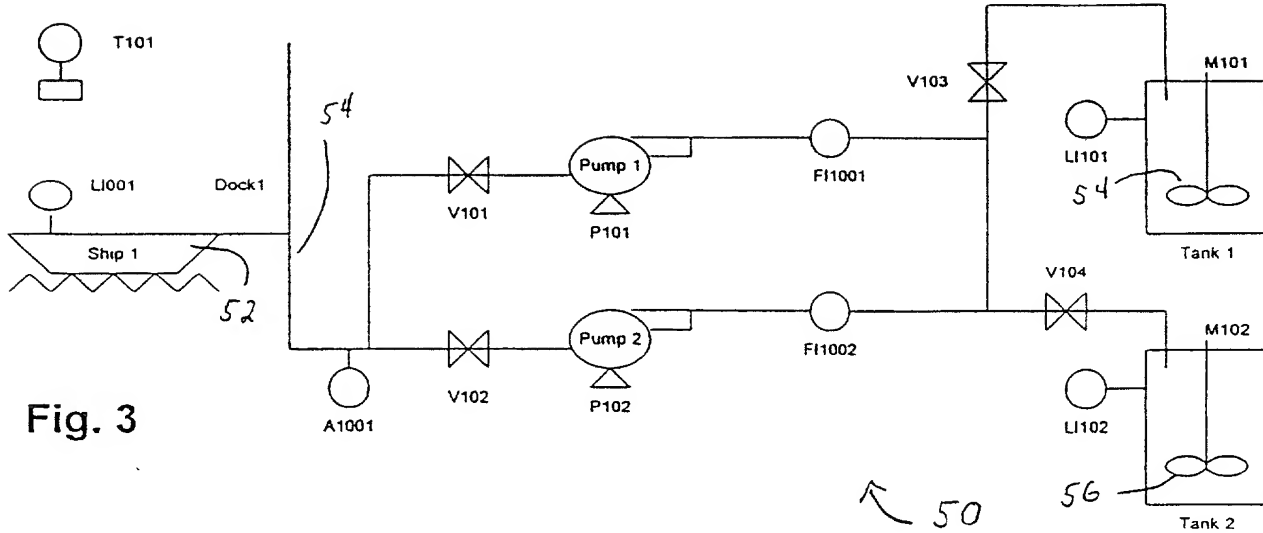


Fig. 4

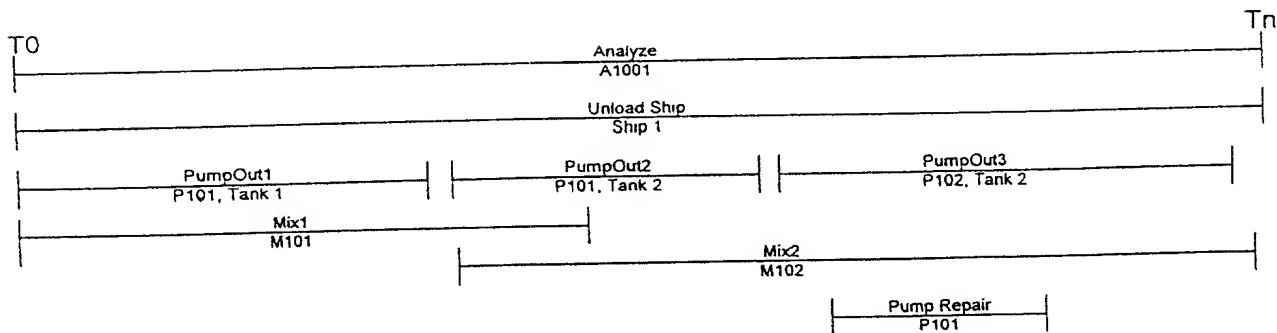
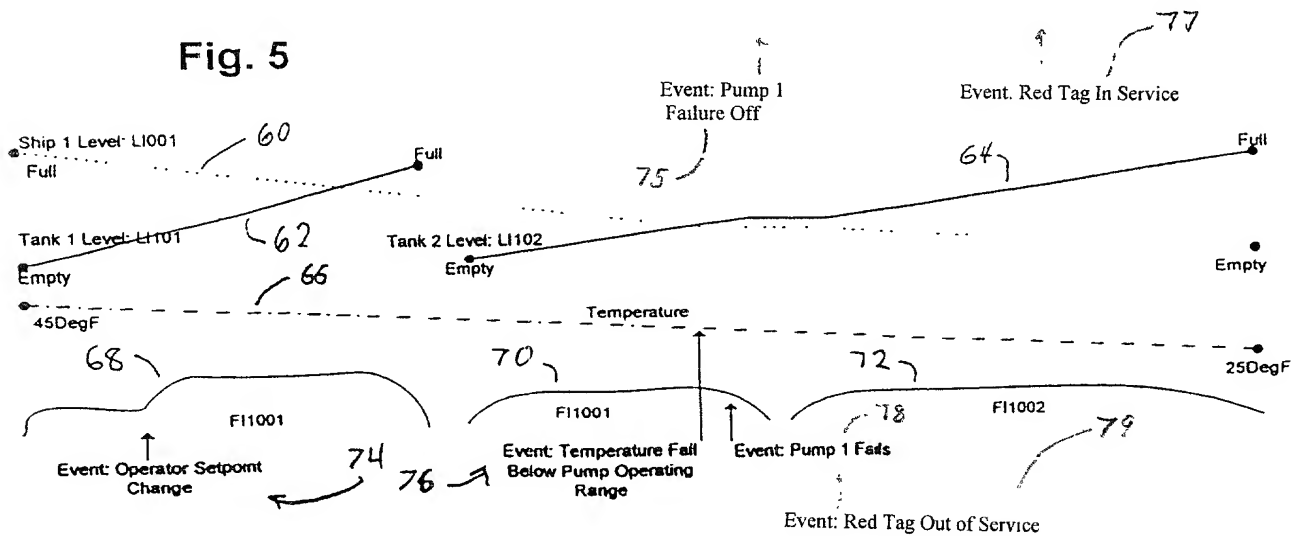


Fig. 5



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Activity Type	Attribute Name	Static	Default Value
UnitOperation	StartTime	N	ProdSystem
	EndTime	N	
	ID	N	
	Equipment	N	
	FlowRate	N	
	AccumValue	N	
	Source	Y	
Event Type	Attribute Name	Static	Default Value
Alarm	TimeStamp	N	OprSystem
	Resource	N	
	Message	N	
	State	N	
	Source	Y	
OprChg	TimeStamp	N	
	Operator	N	
	Resource	N	
	Message	N	
	Command	N	
	Source	N	

**Fig. 6**

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# History

Activity Type	Start Time	End Time	ID	Equipment	FlowRate	AccumValue	Source
PumpOut	8/17/2000 10:00AM	8/17/2000 10:55AM	PumpOut1	Tank1	F11001.PV	150,000	ProdSystem
PumpOut	8/17/2000 11:05AM	8/17/2000 11:45AM	PumpOut2	Tank2	F11001.PV	65,000	ProdSystem
PumpOut	8/17/2000 12:05PM	8/17/2000 2:05PM	PumpOut3	Tank2	F11002.PV	85,000	ProdSystem
Event Type	Time Stamp	Resource	Message	State	Source		
Alarm	8/17/2000 11:35AM	T101	LowTemp	On	OprSystem		
Alarm	8/17/2000 11:40AM	P101	PumpFail	On	OprSystem		
Alarm	8/17/2000 11:45AM	P101	PumpFail	Off	OprSystem		
Event Type	Time Stamp	Operator	Resource	Message	Command	Source	
OprChg	8/17/2000 10:20AM	JOE	P101	Speed	50	OprSystem	
Event Type	Time Stamp	Operator	Device	Message	Command	Source	
OprChg	8/17/2000 12:35PM	FRED	PMP101	RedTag	OutOfService	MaintSystem	
OprChg	8/17/2000 1:35PM	FRED	PMP101	RedTag	InService	MaintSystem	

Fig. 7

Instance

PumpOut Activities

Start Time	End Time	ID	Equipment	FlowRate	AccumValue	Source
8/17/2000 10:00AM	8/17/2000 10:55AM	PumpOut1	Tank1	F11001.PV	150,000	ProdSystem
8/17/2000 11:05AM	8/17/2000 11:45AM	PumpOut2	Tank2	F11001.PV	65,000	ProdSystem
8/17/2000 12:05PM	8/17/2000 2:05PM	PumpOut3	Tank2	F11002.PV	85,000	ProdSystem

Alarm Events

Time Stamp	Resource	Message	State	Source
8/17/2000 11:35AM	T101	LowTemp	On	OprSystem
8/17/2000 11:40AM	P101	PumpFail	On	OprSystem
8/17/2000 11:45AM	P101	PumpFail	Off	OprSystem

OprChg Events

Time Stamp	Operator	Resource	Message	Command	Source
8/17/2000 10:20AM	JOE	P101	Speed	50	OprSystem
8/17/2000 12:35PM	FRED	PMP101	RedTag	OutOfService	MaintSystem
8/17/2000 1 35PM	FRED	PMP101	RedTag	InService	MaintSystem

Fig. 8

## Retrieval

### Rows

Event Type	Time Stamp	Attribute Name	Attribute Value
Alarm	8/17/2000 11:35AM	Resource	T101
		Message	LowTemp
		State	On
Alarm	8/17/2000 11:40AM	Source	OprSystem
		Resource	P101
		Message	PumpFail
Alarm	8/17/2000 11:45AM	State	On
		Source	OprSystem
		Resource	P101
OprChg	8/17/2000 10:20AM	Message	PumpFail
		State	Off
		Source	OprSystem
OprChg	8/17/2000 12:35PM	Operator	JOE
		Resource	P101
		Message	Speed
OprChg	8/17/2000 1:35PM	Command	50
		Source	OprSystem
		Operator	FRED
OprChg	8/17/2000 1:35PM	Resource	PMP101
		Message	RedTag
		Command	OutOfService
OprChg	8/17/2000 1:35PM	Source	MaintSystem
		Operator	FRED
		Resource	PMP101
OprChg	8/17/2000 1:35PM	Message	RedTag
		Command	InService
		Source	MaintSystem

Fig. 9

**Columns**

Event Type	Time Stamp	Operator	Resource	Message	Command	State	Source
Alarm	8/17/2000 11:35AM		T101	LowTemp		On	OprSystem
Alarm	8/17/2000 11:40AM		P101	PumpFail		On	OprSystem
Alarm	8/17/2000 11:45AM		P101	PumpFail		Off	OprSystem
OprChg	8/17/2000 10:20AM	JOE	P101	Speed	50		OprSystem
OprChg	8/17/2000 12:35PM	FRED	PMP101	RedTag	OutOfService		MaintSystem
OprChg	8/17/2000 1:35PM	FRED	PMP101	RedTag	InService		MaintSystem

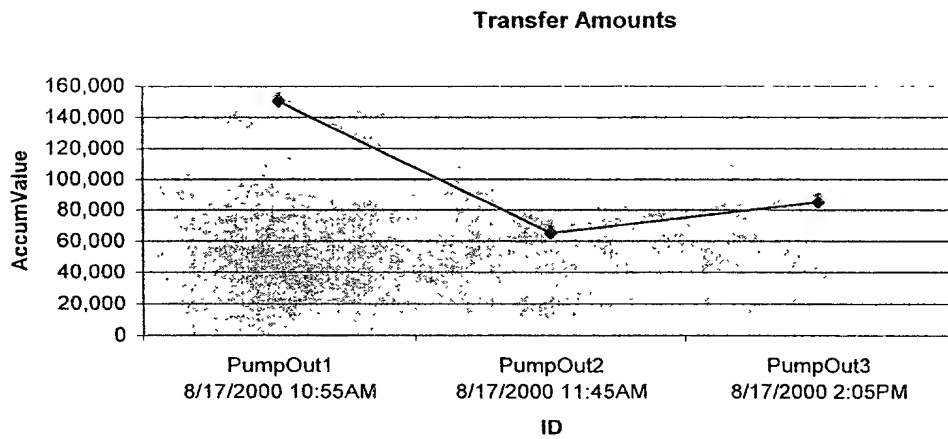
**Fig. 10**



**Chart**

Activity Type	End Time	ID	AccumValue
PumpOut	8/17/2000 10:55AM	PumpOut1	150,000
PumpOut	8/17/2000 11:45AM	PumpOut2	65,000
PumpOut	8/17/2000 2:05PM	PumpOut3	85,000

**Fig. 11**



**Fig. 12**

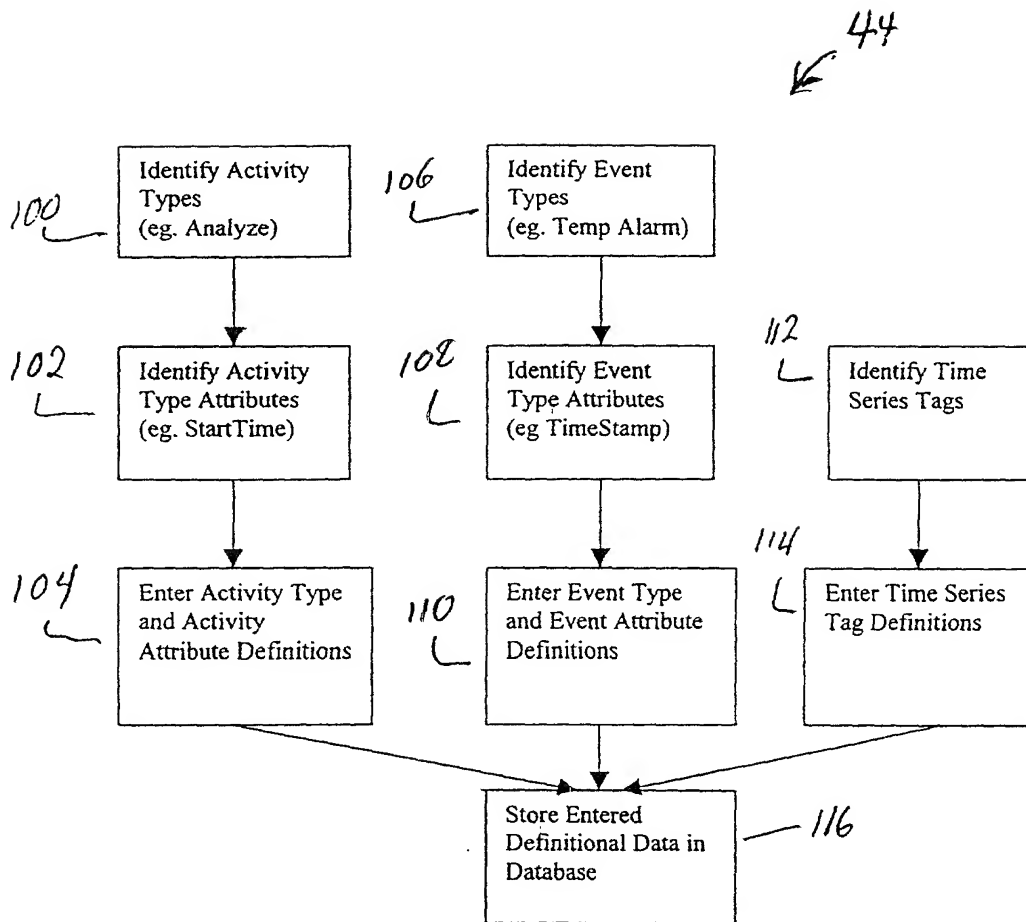


Fig. 13

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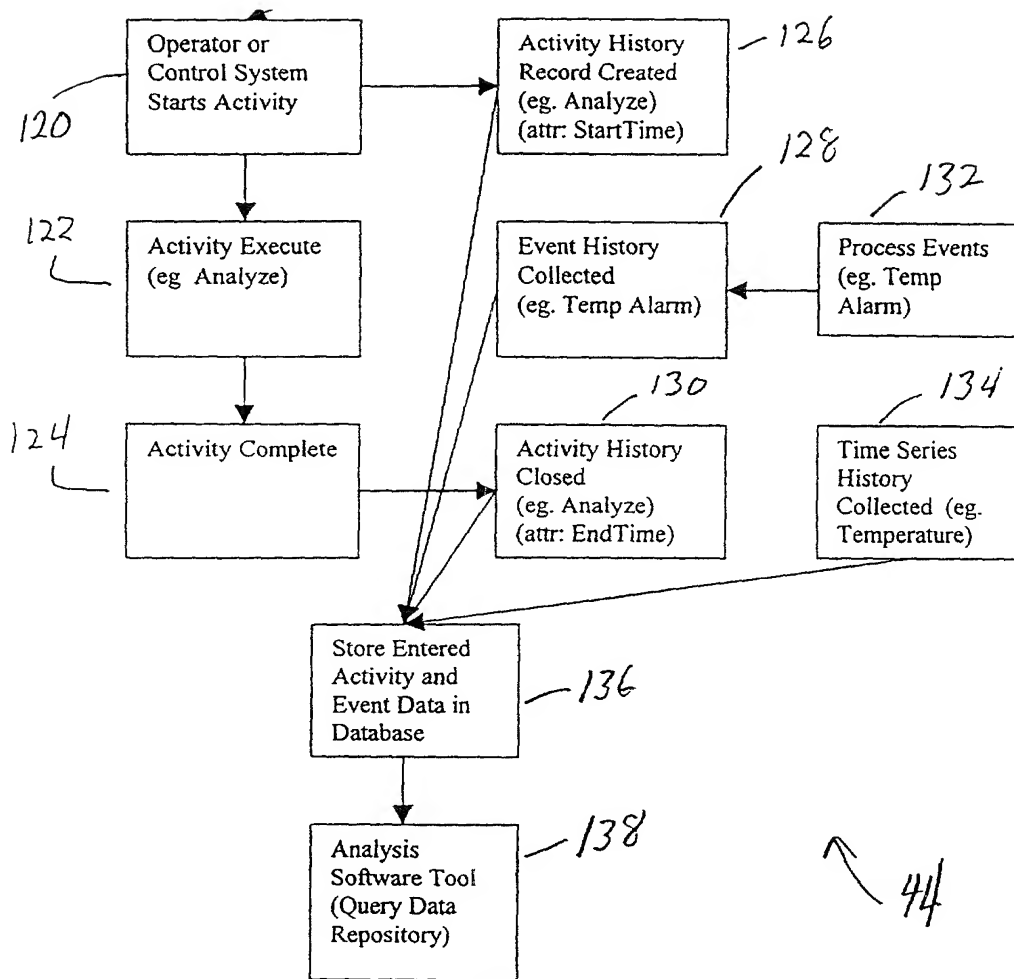


Fig. 14